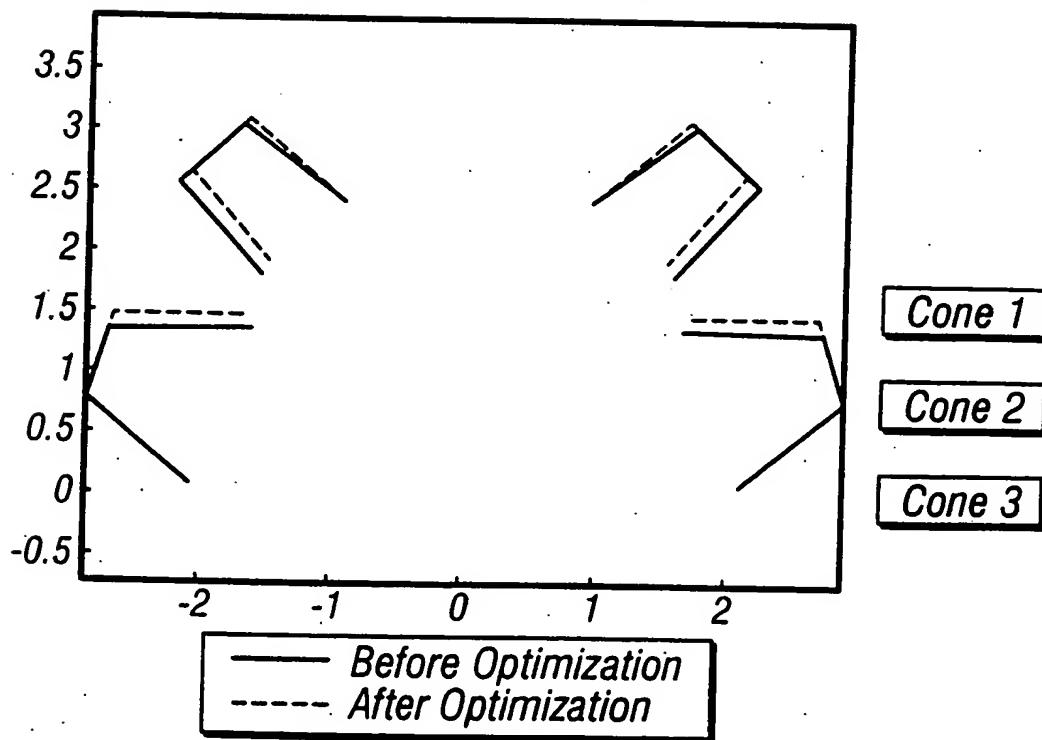
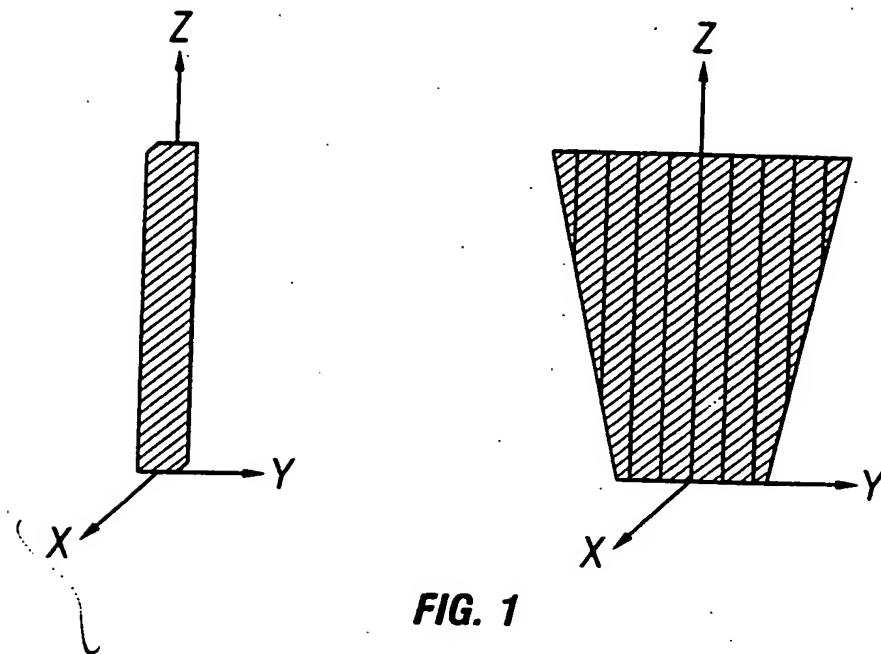


FORCE-BALANCED ROLLER-CONE BITS,  
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DESIGN METHODS

Inventor: Shilin Chen  
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L/O

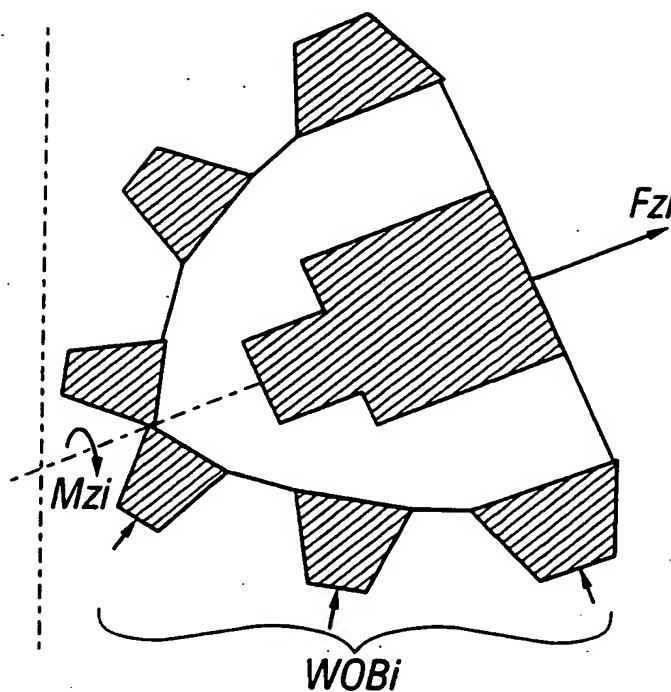


FIG. 2

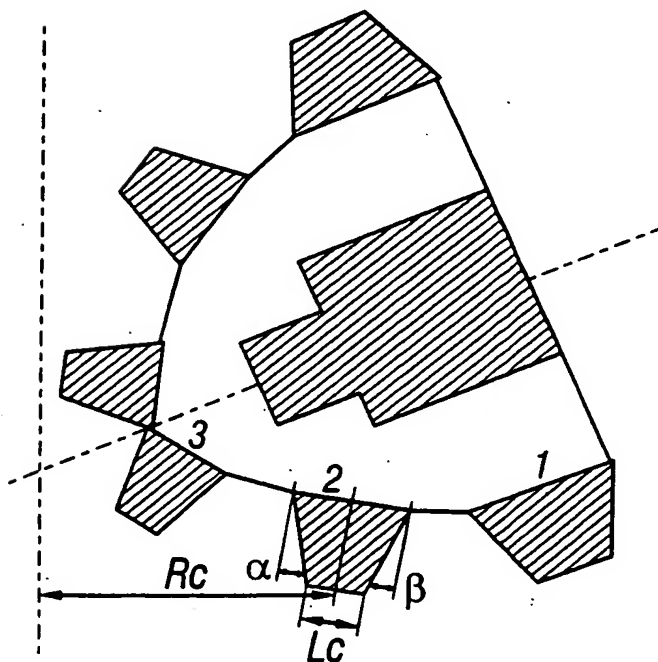
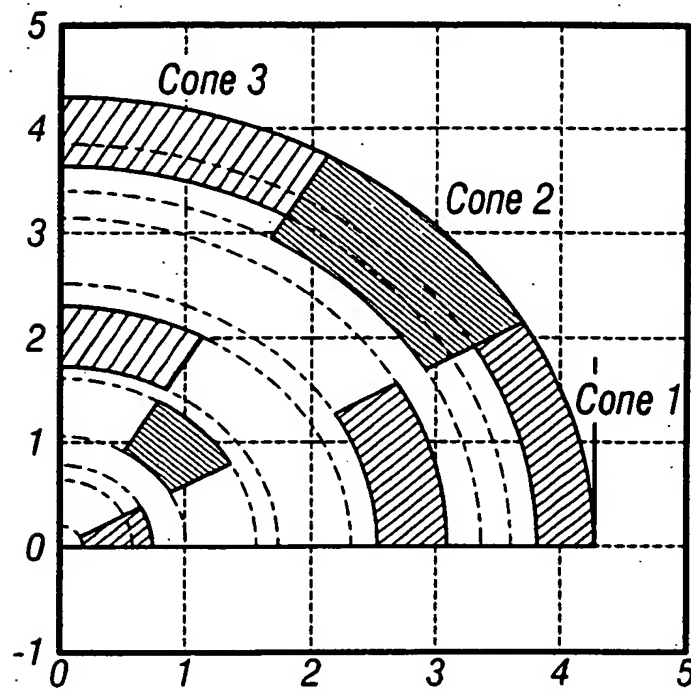
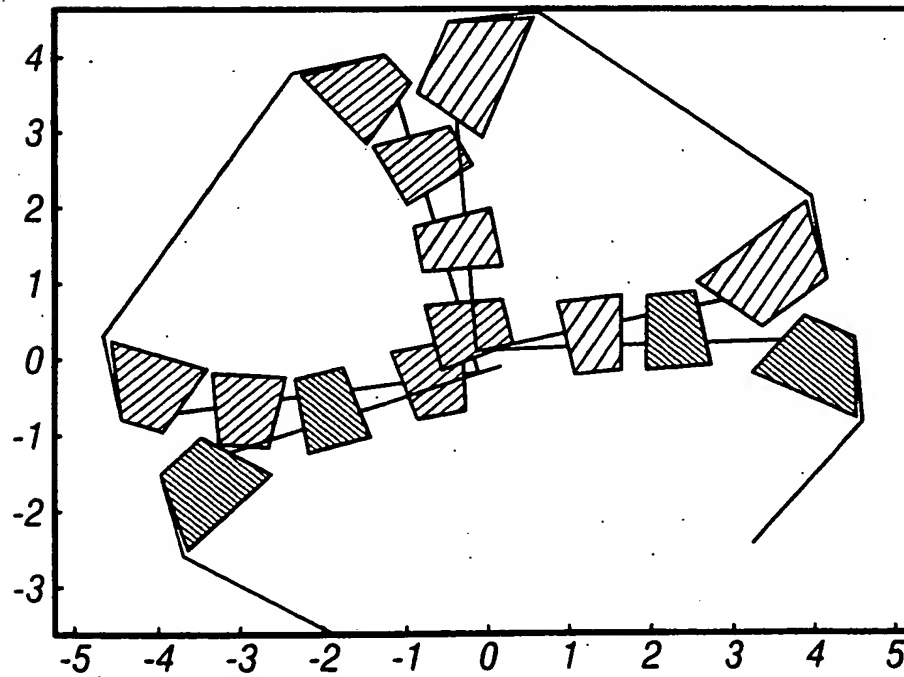


FIG. 3



**FIG. 4**



**FIG. 5**

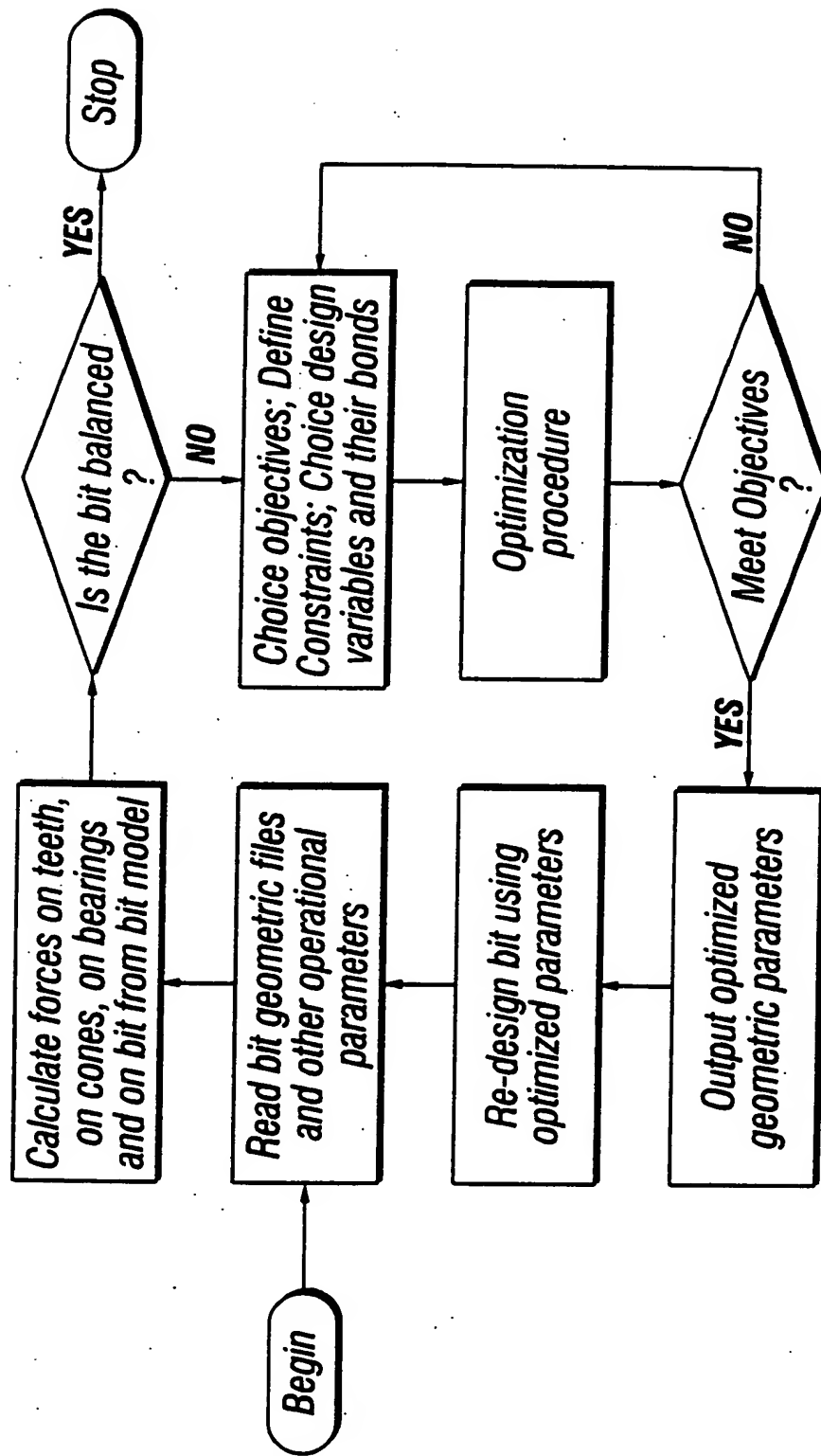
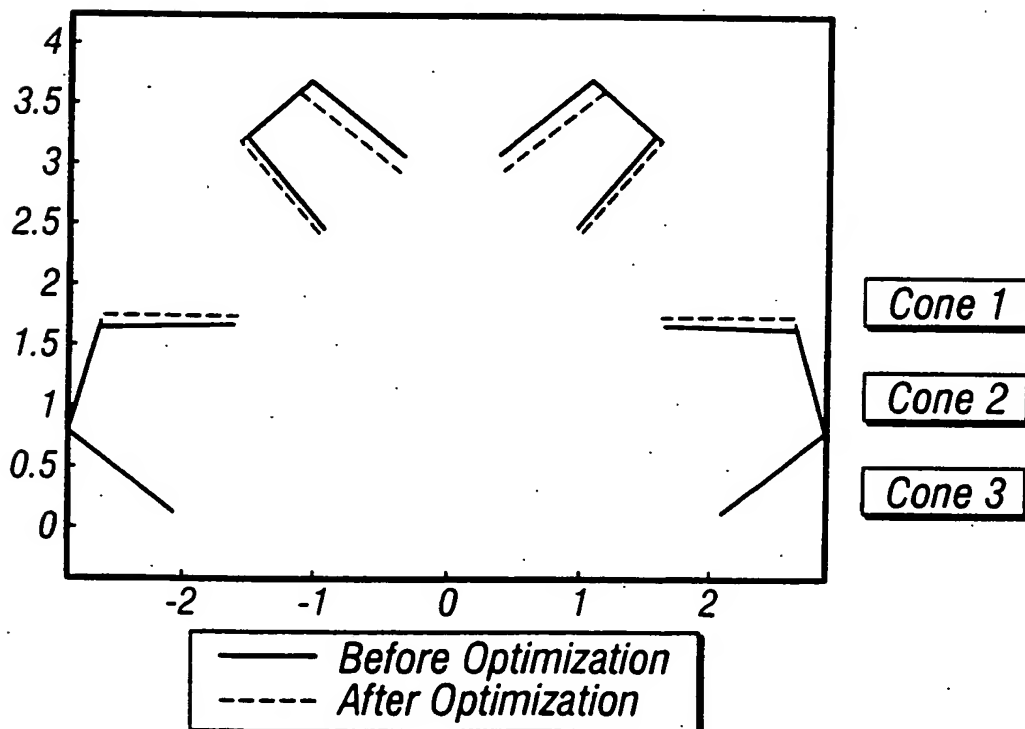
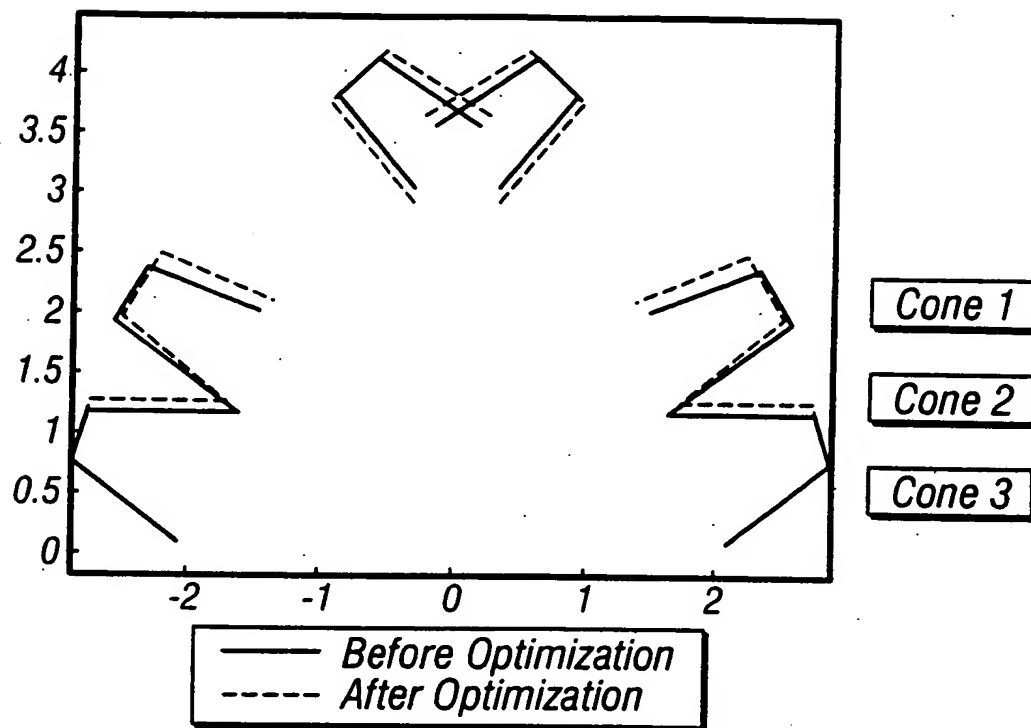


FIG. 6

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U/O

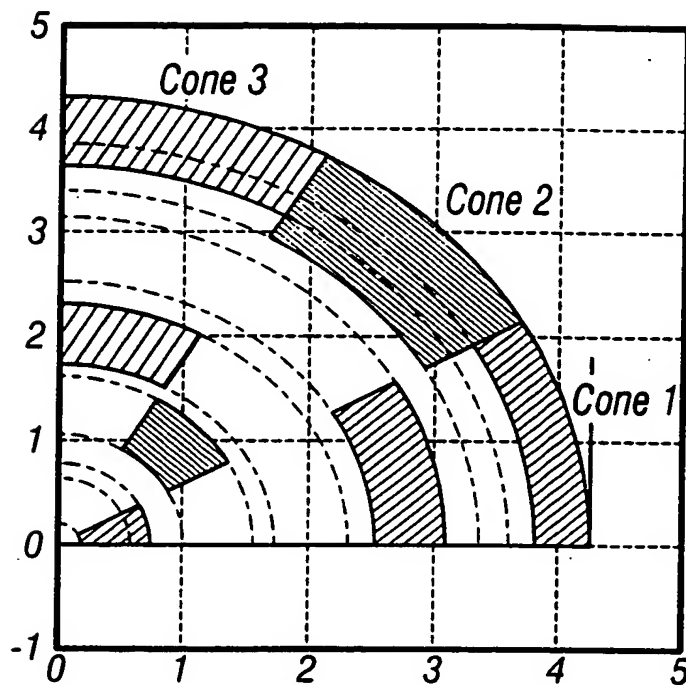


FIG. 8A

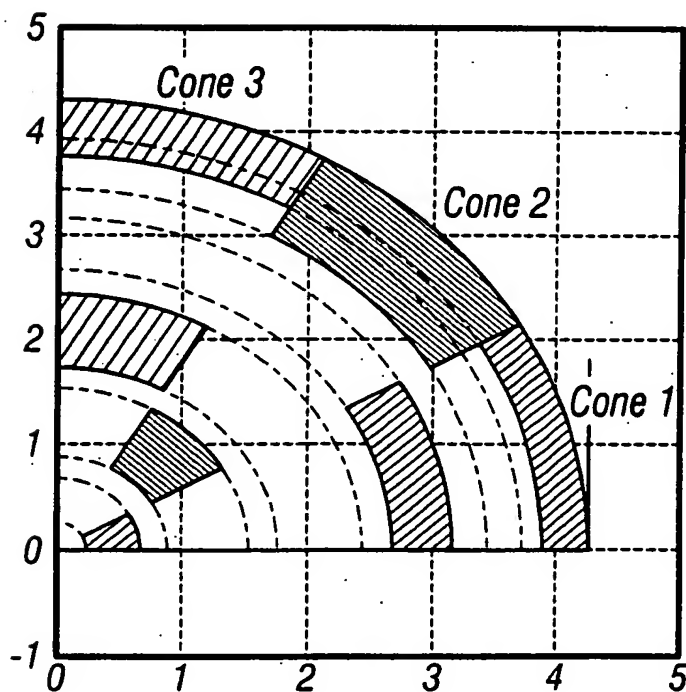
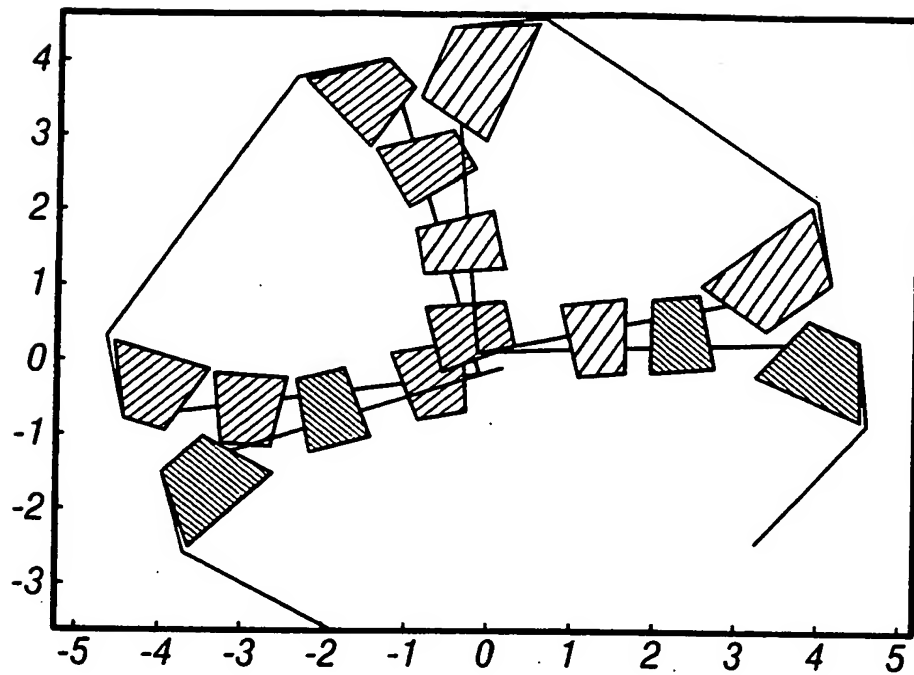


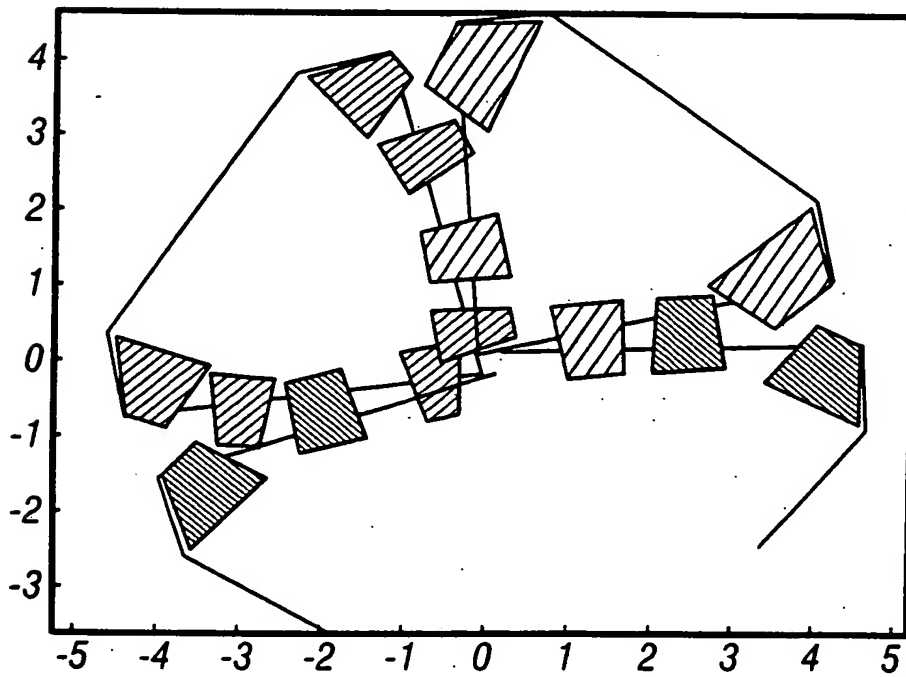
FIG. 8B

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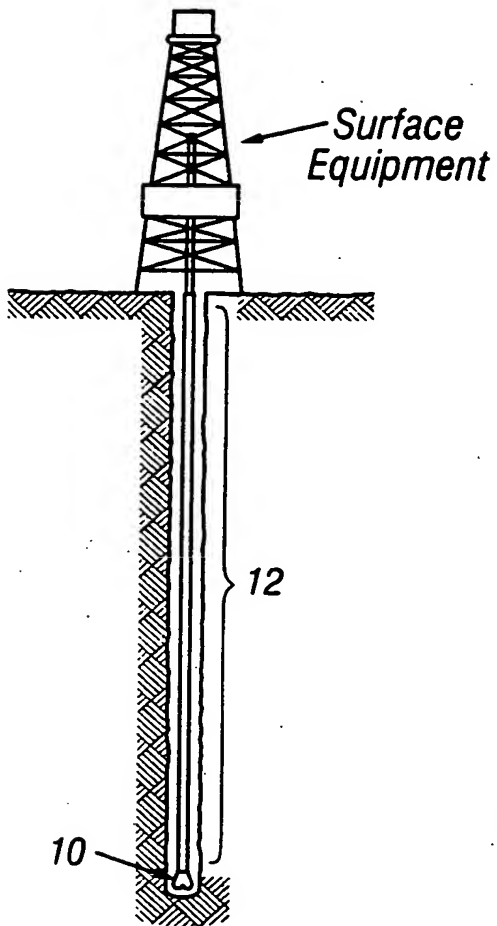
**FIG. 9A**



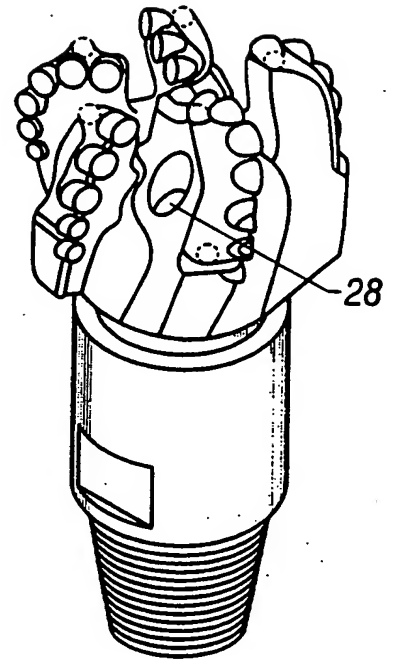
**FIG. 9B**

**FORCE-BALANCED ROLLER-CONE BITS,  
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DESIGN METHODS**

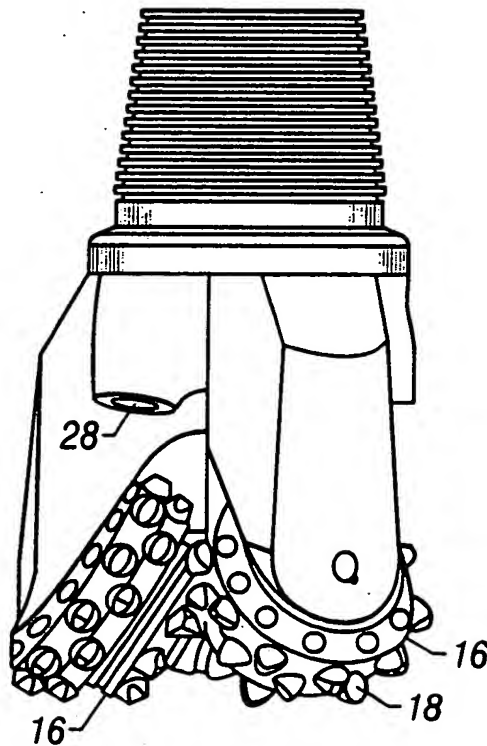
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Date Filed: January 26, 2004  
Attorney's Docket: 074263.0210 (SC-98-025 C3-A)  
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**FIG. 10**



**FIG. 11**



**FIG. 12**